

## FLOUNDER INVESTIGATIONS

For many years flounders have formed an important part of the New England trawl catch. In 1957 the 5 species that are commercially exploited furnished about 20 percent of the ex-vessel value of fin-fish landed at New England ports. The annual catch of flounders has decreased in recent years, however, due mainly to reduced catches of yellowtail and blackback, the principal species in the catch.

It is important to specify the factors responsible for reduced catches and to study the biology of flounder species, especially with regard to vital statistics parameters, because such information is often of importance for efficient resource management. It is possible that the application of the results of biological research can raise the yield in those fisheries that have been intensively exploited.

August 6, 1959

# SUMMARY CONTINUED SCHEDULE

Investigation: Flounder  
Biological Laboratory: Woods Hole, Mass.

Project Title	Est.* Cost	Fiscal Years										
		57	58	59	60	61	62	63	64	65	66	
1. Yellowtail: Description of fishery and landings	7.0	3.6	2.1	1.3								
2. Yellowtail: Definition of stocks	21.6	6.4	5.0	5.5	4.7							
3. Yellowtail: Age and growth - So. New England ground	23.5	6.4	6.3	5.5	5.3							
4. Yellowtail: Age and growth - Georges Bank	17.2	2.8	5.0	1.5	4.7	3.2						
5. Yellowtail: Age and growth - Cape Cod ground	14.9		2.0	5.3	4.3	3.3						
6. Yellowtail: Comparative abundance	18.6	1.7	2.3	1.6	0.9	3.3	5.9	6.5	7.0	8.7	10.7	
7. Yellowtail: Fishing Mortality - So. New England ground	12.0			1.6	1.7	3.2	5.5					
8. Yellowtail: Fishing Mortality - Cape Cod ground	9.5			1.2	1.2	1.6	5.5					
9. Yellowtail: Fishing Mortality - Georges Bank	17.0				1.6	3.5	4.9	7.0				
10. Yellowtail: Total Mortality - 3 grounds	14.3		0.9	1.4	1.6	1.6	2.1	6.7				
11. Yellowtail: Recruitment study - 3 grounds	19.0					1.7	2.1	6.7	8.5			
12. Yellowtail: General life history	23.9						2.1	4.6	8.5	8.7	10.3	
13. Blackback: Maintain record of catch and samples	35.5				0.9	1.9	2.1	4.6	7.0	8.7	10.3	
14. Fluke: Maintain record of catch and samples	35.0				0.9	1.6	2.1	4.6	6.8	8.7	10.3	
15. Dab: Maintain record of catch and samples	33.7					1.6	2.1	4.4	6.7	8.6	10.3	
16. Gray sole: Maintain record of catch and samples	32.9					1.6	2.1	4.4	6.7	7.8	10.3	

\*Total needed by Laboratory for project in thousands of dollars.

Number of Projects Canceled 7/9/59  
be reduced by combining age growth projects as mortality projects.

U. S. Fish and Wildlife Service  
Bureau of Commercial Fisheries

Sheet No. 1

Location: Woods Hole, Mass.  
Date: August 6, 1959  
File No.

Research Project Outline

Title of Project: Yellowtail: Description of fishery and landings

Investigation Title: Flounder

Investigation Chief: F. E. Lux

Project Leader:	<u>F. E. Lux, Research Fishery Biologist</u>	<u>GS-9</u>
	Name	Grade

Assistants: (Title and Grade)

Vacant, Statistical Clerk, GS-3

Collaborators:

Need for Information: To describe history of fishery, present status, and record landings as a preliminary to further yellowtail studies.

Objective: Study history of fishery and landings from past records.

Method of Procedure:

Phase 1: Examine history and methods of fishery.

Phase 2: Extract landings data from records.

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Sheet No. 2

File No.:

Method of Procedure: (Cont'd)

Phase 3:

Estimated Costs: Total Needed by Laboratory for Complete Project 7.0

	<u>FY 1959</u>	<u>FY 1960</u>	<u>FY 1961</u>
Personal Services	<u>0.5</u>	<u>--</u>	<u>--</u>
Other Expenses:			
Within Project	<u>0.2</u>	<u>--</u>	<u>--</u>
	<u>--</u>	<u>--</u>	<u>--</u>
Lab. Adm. & Ser.	<u>0.6</u>	<u>--</u>	<u>--</u>
Lab. Total	<u>1.3</u>	<u>--</u>	<u>--</u>
Regional Office	<u>.913</u>		
Washington Office			
Total			

Recommended Source of Funds S-K and regular  
(S-K, Regular, Contributed, etc.)

Estimated Date of Completion: Phase 1 FY 58; Phase 2 FY 59; Phase 3 FY; Project FY 59

Recommended by:	Date
Originator <u>Fred E. Lux</u>	<u>8/6/59</u>
Investigation Chief <u>Fred E. Lux</u>	<u>8/6/59</u>
Laboratory Director <u>Herbert W. Graham</u>	<u>8/6/59</u>
Regional Director <u>Joseph F. Puncer</u>	<u>8/19/59</u>
Branch Chief <u>WHE</u>	<u>12-24-59</u>
Approved by:	
Division Chief for Director <u>[Signature]</u>	<u>1-4-60</u>

Remarks

(Continue on reverse side)

#715 7/9/59

U. S. Fish and Wildlife Service  
Bureau of Commercial Fisheries

Sheet No. 1

Location: Woods Hole, Mass.  
Date: August 6, 1959  
File No.

Research Project Outline

Title of Project: Yellowtail: Definition of Stocks

Investigation Title: Flounder

Investigation Chief: F. E. Lux

Project Leader: F. E. Lux, Fishery Research Biologist, GS-9

Name

Title

Grade

Assistants: (Title and Grade)

Vacant, Statistical Clerk, GS-3

Collaborators:

Need for Information: The identification of stocks or stock is a necessary prerequisite to population dynamics studies and management proposals.

Objective: To identify the limits of stock or stocks that are commercially exploited.

Method of Procedure:

Phase 1: Mark fish on the several grounds where yellowtail are caught commercially.

Phase 2: Interpret tag return information.

Method of Procedure: (Cont'd)

Phase 3:

Estimated Costs: Total Needed by Laboratory for Complete Project	<u>21.6</u>		
	<u>FY 1959</u>	<u>FY 1960</u>	<u>FY 1961</u>
Personal Services	<u>1.0</u>	<u>1.5</u>	<u>--</u>
Other Expenses:			
Within Project	<u>0.5</u>	<u>0.2</u>	<u>--</u>
	<u>--</u>	<u>--</u>	<u>--</u>
Lab. Adm. & Ser.	<u>4.0</u>	<u>3.0</u>	<u>--</u>
Lab. Total	<u>5.5</u>	<u>4.7</u>	<u>--</u>
Regional Office	<u>.055</u>	<u>.047</u>	
Washington Office			
Total			

Recommended Source of Funds S-K and Regular  
(S-K, Regular, Contributed, etc.)

Estimated Date of Completion: Phase 1 FY 59; Phase 2 FY 60; Phase 3 FY; Project FY 60

Recommended by:

Originator	<u>Fred E. Lux</u>	<u>8/6/59</u>
Investigation Chief	<u>Fred E. Lux</u>	<u>8/6/59</u>
Laboratory Director	<u>Herbert W. Graham</u>	<u>8/6/59</u>
Regional Director	<u>Joseph J. Penner</u>	<u>8/19/59</u>
Branch Chief	<u>W.E.</u>	<u>12-24-59</u>

Approved by:

Division Chief for Director	<u>[Signature]</u>	<u>[Signature]</u>
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Remarks

(Continue on reverse side)

U. S. Fish and Wildlife Service  
Bureau of Commercial Fisheries

Sheet No. 1

Location: Woods Hole, Mass.  
Date: August 6, 1959  
File No.

Research Project Outline

Title of Project: Yellowtail: Age and Growth, Southern New England

Investigation Title: Flounder

Investigation Chief: F. E. Lux

Project Leader: F. E. Lux, Fishery Research Biologist, GS-9

Name

Title

Grade

Assistants: (Title and Grade)

Vacant, Statistical Clerk, GS-3

Collaborators:

Need for Information: Define this parameter for determining efficient utilization of yellowtail.

Objective: Work out age and growth of fish using scales and otoliths from commercial and experimental catches.

Method of Procedure:

Phase 1: Collect length, scale, and otolith samples by ground.

Phase 2: Read scales and otoliths, summarize and interpret data.

Method of Procedure: (Cont'd)

Phase 3:

Estimated Costs: Total Needed by Laboratory for Complete Project 23.5

	FY <u>1959</u>	FY <u>1960</u>	FY <u>1961</u>
Personal Services	<u>1.0</u>	<u>1.7</u>	<u>--</u>
Other Expenses:			
Within Project	<u>0.5</u>	<u>0.3</u>	<u>--</u>
Lab. Adm. & Ser.	<u>4.0</u>	<u>3.3</u>	<u>--</u>
Lab. Total	<u>5.5</u>	<u>5.3</u>	<u>--</u>
Regional Office	<u>.055</u>	<u>.053</u>	<u>      </u>
Washington Office	<u>      </u>	<u>      </u>	<u>      </u>
Total	<u>      </u>	<u>      </u>	<u>      </u>

Recommended Source of Funds S-K and Regular  
(S-K, Regular, Contributed, etc.)

Estimated Date of Completion: Phase 1 FY 59; Phase 2 FY 60; Phase 3 FY ; Project FY 60

Recommended by: Date  
 Originator Fred E. Lux 8/6/59  
 Investigation Chief Fred E. Lux 8/6/59  
 Laboratory Director Herbert W. Graham 8/6/59  
 Regional Director Joseph F. Penner 8/19/59  
 Branch Chief         
 Approved by:  
 Division Chief for Director       

Remarks

(Continue on reverse side)

*Suggest projects So. New England  
Georges Bank and Cape Cod  
ground be combined*



U. S. Fish and Wildlife Service  
Bureau of Commercial Fisheries

Sheet No. 1

Location: Woods Hole, Mass.  
Date: August 6, 1959  
File No.

Research Project Outline

Title of Project: Yellowtail: Age and Growth, Georges Bank

Investigation Title: Flounder

Investigation Chief: F. E. Lux

Project Leader: F. E. Lux, Fishery Research Biologist, GS-9

Name

Title

Grade

Assistants: (Title and Grade)

Vacant, Statistical Clerk, GS-3

Collaborators:

Need for Information: Define this parameter for determining efficient utilization of yellowtail.

Objective: Work out age and growth of fish using scales and otoliths from commercial and experimental catches.

Method of Procedure:

Phase 1: Collect length, scale, and otolith samples by ground.

Phase 2: Read scales and otoliths, summarize and interpret data.

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Sheet No. 2

File No.:

Method of Procedure: (Cont'd)

Phase 3:

Estimated Costs: Total Needed by Laboratory for Complete Project 17.2

	<u>FY 1959</u>	<u>FY 1960</u>	<u>FY 1961</u>
Personal Services	<u>0.5</u>	<u>1.5</u>	<u>1.0</u>
Other Expenses:			
Within Project	<u>0.2</u>	<u>0.2</u>	<u>0.2</u>
--	<u>--</u>	<u>--</u>	<u>--</u>
Lab. Adm. & Ser.	<u>0.8</u>	<u>3.0</u>	<u>2.0</u>
Lab. Total	<u>1.5</u>	<u>4.7</u>	<u>3.2</u>
Regional Office	<u>.015</u>	<u>.047</u>	<u>.032</u>
Washington Office	<u>          </u>	<u>          </u>	<u>          </u>
Total	<u>          </u>	<u>          </u>	<u>          </u>

Recommended Source of Funds S-K and Regular  
(S-K, Regular, Contributed, etc.)

Estimated Date of Completion: Phase 1 FY 60; Phase 2 FY 61; Phase 3 FY ; Project FY 61

Recommended by:

	<u>Date</u>
Originator <u>Fred E. Lux</u>	<u>8/6/59</u>
Investigation Chief <u>Fred E. Lux</u>	<u>8/6/59</u>
Laboratory Director <u>Herbert W. Graham</u>	<u>8/6/59</u>
Regional Director <u>Joseph E. Purnoch</u>	<u>8/19/59</u>
Branch Chief <u>                                </u>	<u>          </u>

Approved by:

Division Chief for Director                                 

Remarks

(Continue on reverse side)

*Suggest projects to New England,  
Georgia and Cape Cod.  
should be combined. HHE 12-24-57  
Purch 1-4 to*

#715 7/9/59

U. S. Fish and Wildlife Service  
Bureau of Commercial Fisheries

Sheet No. 1

Location: Woods Hole, Mass.  
Date: August 6, 1959  
File No.

Research Project Outline

Title of Project: Yellowtail: Age and growth, Cape Cod ground

Investigation Title: Flounder

Investigation Chief: F. E. Lux

Project Leader:	<u>F. E. Lux, Fishery Research Biologist, GS-9</u>			
	<table border="0"><tr><td style="text-align: center;">Name</td><td style="text-align: center;">Title</td><td style="text-align: center;">Grade</td></tr></table>	Name	Title	Grade
Name	Title	Grade		

Assistants: (Title and Grade)

Vacant, Statistical Clerk, GS-3

Collaborators:

Need for Information: Define this parameter for determining efficient utilization of yellowtail.

Objective: Work out age and growth of fish using scales and otoliths from commercial and experimental catches.

Method of Procedure:

Phase 1: Collect length, scale, and otolith samples by ground.

Phase 2: Read scales and otoliths, summarize and interpret data.

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Sheet No. 2

File No.:

Method of Procedure: (Cont'd)

Phase 3:

Estimated Costs:	Total Needed by Laboratory for Complete Project	14.9	
	<u>FY 1959</u>	<u>FY 1960</u>	<u>FY 1961</u>
Personal Services	<u>1.0</u>	<u>1.0</u>	<u>1.0</u>
Other Expenses:			
Within Project	<u>0.3</u>	<u>0.3</u>	<u>0.3</u>
--	<u>--</u>	<u>--</u>	<u>--</u>
Lab. Adm. & Ser.	<u>4.0</u>	<u>3.0</u>	<u>2.0</u>
Lab. Total	<u>5.3</u>	<u>4.3</u>	<u>3.3</u>
Regional Office	<u>.053</u>	<u>.043</u>	<u>.033</u>
Washington Office	<u>          </u>	<u>          </u>	<u>          </u>
Total	<u>          </u>	<u>          </u>	<u>          </u>

Recommended Source of Funds S-K and Regular  
(S-K, Regular, Contributed, etc.)

Estimated Date of Completion: Phase 1 FY 60; Phase 2 FY 61; Phase 3 FY; Project FY 61

Recommended by:

Originator	<u>Fred E. Lux</u>	<u>8/6/59</u>
Investigation Chief	<u>Fred E. Lux</u>	<u>8/6/59</u>
Laboratory Director	<u>Herbert W. Graham</u>	<u>8/6/59</u>
Regional Director	<u>Joseph F. Penner</u>	<u>8/19/59</u>
Branch Chief	<u>                                  </u>	<u>          </u>

Approved by:

Division Chief for Director                                   

Remarks

(Continue on reverse side)

*Suggest projects So New England,  
Georges and Cape Cod ground  
be combined. HHE 12-24-59  
MCH 1-2-60*

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U. S. Fish and Wildlife Service  
Bureau of Commercial Fisheries

Sheet No. 1

Location: Woods Hole, Mass.  
Date: August 6, 1959  
File No.

Research Project Outline

Title of Project: Yellowtail: Comparative abundance

Investigation Title: Flounder

Investigation Chief: F. E. Lux

Project Leader:	<u>F. E. Lux, Fishery Research Biologist,</u>	<u>GS-9</u>
	Name	Title
		Grade

Assistants: (Title and Grade)

Vacant, Statistical Clerk, GS-3

Collaborators:

Need for Information: Identification of cause or causes for drop in annual yellowtail catch so that some level of fishery prediction may be possible in near future.

Objective: To work out relative abundance of yellowtail, since 1942, in terms of catch/boat/day for the yellowtail vessels.

Method of Procedure:

Phase 1: Obtain catch and effort of yellowtail trips landed at New Bedford (where 2/3 of yellowtail are landed). Separate trips by vessel size, fishing area, and date.

Phase 2: Summarize and interpret data.

Flounder - 6

Sheet No. 2

File No.:

Method of Procedure: (Cont'd)

Phase 3:

Estimated Costs:	Total Needed by Laboratory for Complete Project	48.6	
	<u>FY 1959</u>	<u>FY 1960</u>	<u>FY 1961</u>
Personal Services	<u>0.5</u>	<u>0.1</u>	<u>1.0</u>
Other Expenses:			
Within Project	<u>0.3</u>	<u>0.1</u>	<u>0.3</u>
	<u>--</u>	<u>--</u>	<u>--</u>
Lab. Adm. & Ser.	<u>0.8</u>	<u>0.7</u>	<u>2.0</u>
Lab. Total	<u>1.6</u>	<u>0.9</u>	<u>3.3</u>
Regional Office	<u>.016</u>	<u>.009</u>	<u>.033</u>
Washington Office			
Total			

Recommended Source of Funds S-K and Regular  
(S-K, Regular, Contributed, etc.)

Estimated Date of Completion: Phase 1 FY; Phase 2 FY; Phase 3 FY; Project FY 66

Recommended by:		<u>Date</u>
Originator	<u>Fred E. Lux</u>	<u>8/6/59</u>
Investigation Chief	<u>Fred E. Lux</u>	<u>8/6/59</u>
Laboratory Director	<u>Herbert W. Graham</u>	<u>8/6/59</u>
Regional Director	<u>Joseph G. Dummer</u>	<u>8/19/59</u>
Branch Chief	<u>WSE</u>	<u>12-24-59</u>
Approved by:		
Division Chief for Director	<u>[Signature]</u>	<u>1-4-60</u>

Remarks

(Continue on reverse side)

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U. S. Fish and Wildlife Service  
Bureau of Commercial Fisheries

Sheet No. 1

Location: Woods Hole, Mass.  
Date: August 6, 1959  
File No.

Research Project Outline

Title of Project: Yellowtail: Fishing mortality, Southern New England ground

Investigation Title: Flounder

Investigation Chief: F. E. Lux

Project Leader:	<u>F. E. Lux, Fishery Research Biologist,</u>	<u>GS-9</u>
	Name	Grade

Assistants: (Title and Grade)

Vacant, Statistical Clerk, GS-3

Collaborators:

Need for Information: To determine estimate of this parameter for use in working out efficient utilization of Yellowtail.

Objective: To analyze returns for fishing intensity and catch.

Method of Procedure:

Phase 1: Mark fish on this ground.

Phase 2: Tabulate returns, adjust data, and estimate fishing mortality.

Method of Procedure: (Cont'd)

Phase 3:

Estimated Costs: Total Needed by Laboratory for Complete Project			<u>12.0</u>
	<u>FY 1959</u>	<u>FY 1960</u>	<u>FY 1961</u>
Personal Services	<u>0.5</u>	<u>0.5</u>	<u>1.0</u>
Other Expenses:			
Within Project	<u>0.3</u>	<u>0.3</u>	<u>0.2</u>
	<u>--</u>	<u>--</u>	<u>--</u>
Lab. Adm. & Ser.	<u>0.8</u>	<u>0.9</u>	<u>2.0</u>
Lab. Total	<u>1.6</u>	<u>1.7</u>	<u>3.2</u>
Regional Office	<u>.016</u>	<u>.017</u>	<u>.032</u>
Washington Office	<u></u>	<u></u>	<u></u>
Total	<u></u>	<u></u>	<u></u>

Recommended Source of Funds S-K and Regular  
(S-K, Regular, Contributed, etc.)

Estimated Date of Completion: Phase 1 FY 59; Phase 2 FY; Phase 3 FY; Project FY 62

Recommended by:

Originator	<u>Fred E. Lux</u>	<u>8/6/59</u>
Investigation Chief	<u>Fred E. Lux</u>	<u>8/6/59</u>
Laboratory Director	<u>Herbert W. Graham</u>	<u>8/6/59</u>
Regional Director	<u>Joseph G. Penner</u>	<u>8/19/59</u>
Branch Chief	<u></u>	<u></u>

Approved by:  
Division Chief for Director

Remarks

(Continue on reverse side)

*Suggest projects on mortality  
studies be combined.*



U. S. Fish and Wildlife Service  
Bureau of Commercial Fisheries

Sheet No. 1

Location: Woods Hole, Mass.  
Date: August 6, 1959  
File No.

Research Project Outline

Title of Project: Yellowtail: Fishing mortality, Cape Cod ground

Investigation Title: Flounder

Investigation Chief: F. E. Lux

Project Leader: F. E. Lux, Fishery Research Biologist, GS-9

Name

Title

Grade

Assistants: (Title and Grade)

Vacant, Statistical Clerk, GS-3

Collaborators:

Need for Information: To determine estimate of this parameter for use in working out efficient utilization of yellowtail.

Objective: To analyze returns for fishing intensity and catch.

Method of Procedure:

Phase 1: Mark fish on this ground.

Phase 2: Tabulate returns, adjust data, and estimate fishing mortality.

Method of Procedure: (Cont'd)

Phase 3:

Estimated Costs: Total Needed by Laboratory for Complete Project	9.5		
	<u>FY 1959</u>	<u>FY 1960</u>	<u>FY 1961</u>
Personal Services	0.5	0.2	0.5
Other Expenses:			
Within Project	0.3	0.1	0.1
	--	--	--
Lab. Adm. & Ser.	0.4	0.9	1.0
Lab. Total	1.2	1.2	1.6
Regional Office	.012	.012	.016
Washington Office			
Total			

Recommended Source of Funds S-K and Regular  
(S-K, Regular, Contributed, etc.)

Estimated Date of Completion: Phase 1 FY 59; Phase 2 FY; Phase 3 FY; Project FY 62

Recommended by:

Originator	<u>Fred E. Lux</u>	<u>8/6/59</u>	<u>Date</u>
Investigation Chief	<u>Fred E. Lux</u>	<u>8/6/59</u>	
Laboratory Director	<u>Herbert W. Graham</u>	<u>8/6/59</u>	
Regional Director	<u>Joseph E. Pinner</u>	<u>8/19/59</u>	
Branch Chief			

Approved by:  
Division Chief for Director \_\_\_\_\_

Remarks

(Continue on reverse side)

*Suggest projects on mortality  
studies be combined*

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*1511E 12-24-59  
11-4-60*

U. S. Fish and Wildlife Service  
Bureau of Commercial Fisheries

Sheet No. 1

Location: Woods Hole, Mass.  
Date: August 6, 1959  
File No.

Research Project Outline

Title of Project: Yellowtail: Fishing mortality, Georges Bank

Investigation Title: Flounder

Investigation Chief: F. E. Lux

Project Leader:	<u>F. E. Lux</u>	<u>Fishery Research Biologist</u>	<u>GS-9</u>
	Name	Title	Grade

Assistants: (Title and Grade)

Vacant, Statistical Clerk, GS-3

Collaborators:

Need for Information: To determine estimate of this parameter for use in working out efficient utilization of yellowtail.

Objective: To analyze returns for fishing intensity and catch.

Method of Procedure:

Phase 1: Mark fish on this ground.

Phase 2: Tabulate returns, adjust data, and estimate fishing mortality.

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Sheet No. 2

File No.:

Method of Procedure: (Cont'd)

Phase 3:

Estimated Costs: Total Needed by Laboratory for Complete Project 17.0

	<u>FY 1959</u>	<u>FY 1960</u>	<u>FY 1961</u>
Personal Services	<u>--</u>	<u>0.5</u>	<u>1.3</u>
Other Expenses:			
Within Project	<u>--</u>	<u>0.2</u>	<u>0.2</u>
	<u>--</u>	<u>--</u>	<u>--</u>
Lab. Adm. & Ser.	<u>--</u>	<u>0.9</u>	<u>2.0</u>
Lab. Total	<u>--</u>	<u>1.6</u>	<u>3.5</u>
Regional Office		<u>.016</u>	<u>.035</u>
Washington Office			
Total			

Recommended Source of Funds S-K and Regular  
(S-K, Regular, Contributed, etc.)

Estimated Date of Completion: Phase 1 FY60; Phase 2 FY; Phase 3 FY; Project FY63

Recommended by:

Originator	<u>Fred E. Lux</u>	<u>8/6/59</u>	<u>Date</u>
Investigation Chief	<u>Fred E. Lux</u>	<u>8/6/59</u>	
Laboratory Director	<u>Herbert W. Graham</u>	<u>8/6/59</u>	
Regional Director	<u>Joseph H. Pinner</u>	<u>8/19/59</u>	
Branch Chief			

Approved by:

Division Chief for Director \_\_\_\_\_

Remarks

(Continue on reverse side)

*Suggest projects on mortality  
studies be combined.*

#715 7/9/59

*15 HE 12-27-59 JH-1-46*

U. S. Fish and Wildlife Service  
Bureau of Commercial Fisheries

Sheet No. 1

Location: Woods Hole, Mass.  
Date: August 6, 1959  
File No.

Research Project Outline

Title of Project: Yellowtail: Total mortality from major grounds

Investigation Title: Flounder

Investigation Chief: F. E. Lux

Project Leader: F. E. Lux, Fishery Research Biologist, GS-9  
Name Title Grade

Assistants: (Title and Grade)

Vacant, Statistical Clerk, GS-3

Collaborators:

Need for Information: To estimate this parameter for determining efficient utilization of yellowtail.

Objective: To use age frequency data (catch curves) for estimation of mortality.

Method of Procedure:

Phase 1: Combine age frequency data from commercial catch for several years, by ground.

Phase 2: Calculate total mortality estimates.

## Method of Procedure: (Cont'd)

## Phase 3:

Estimated Costs: Total Needed by Laboratory for Complete Project			<u>14.3</u>
	<u>FY 1959</u>	<u>FY 1960</u>	<u>FY 1961</u>
Personal Services	<u>0.5</u>	<u>0.5</u>	<u>0.5</u>
Other Expenses:			
Within Project	<u>0.1</u>	<u>0.2</u>	<u>0.1</u>
	<u>--</u>	<u>--</u>	<u>--</u>
Lab. Adm. & Ser.	<u>0.8</u>	<u>0.9</u>	<u>1.0</u>
Lab. Total	<u>1.4</u>	<u>1.6</u>	<u>1.6</u>
Regional Office	<u>.014</u>	<u>.016</u>	<u>.016</u>
Washington Office			
Total			

Recommended Source of Funds S-K and Regular  
(S-K, Regular, Contributed, etc.)

Estimated Date of Completion: Phase 1 FY58; Phase 2 FY; Phase 3 FY; Project FY 63

Recommended by: \_\_\_\_\_ Date \_\_\_\_\_  
 Originator Fred E. Lux 8/6/59  
 Investigation Chief Fred E. Lux 8/6/59  
 Laboratory Director Herbert W. Graham 8/6/59  
 Regional Director Joseph F. Pomeroy 8/19/59  
 Branch Chief \_\_\_\_\_  
 Approved by: \_\_\_\_\_  
 Division Chief for Director \_\_\_\_\_

Remarks

(Continue on reverse side)

*Suggest projects on mortality  
studies be combined*

*111E 12-24-59  
port 1-4 to*

U. S. Fish and Wildlife Service  
Bureau of Commercial Fisheries

Sheet No. 1

Location: Woods Hole, Mass.  
Date: August 6, 1959  
File No.

Research Project Outline

Title of Project: Yellowtail: Recruitment on major grounds

Investigation Title: Flounder

Investigation Chief: F. E. Lux

Project Leader: F. E. Lux, Fishery Research Biologist, GS-9

Name

Title

Grade

Assistants: (Title and Grade)

Vacant, Statistical Clerk, GS-3

Collaborators:

Need for Information: Estimate of parameter needed for determining efficient harvest.

Objective: To estimate number of recruits from experimental and commercial trawl catches.

Method of Procedure:

Phase 1: Calculate estimate of annual additions to stock.

Phase 2: Interpret data.

Method of Procedure: (Cont'd)

Phase 3:

Estimated Costs: Total Needed by Laboratory for Complete Project 19.0

	FY <u>1959</u>	FY <u>1960</u>	FY <u>1961</u>
Personal Services	<u>--</u>	<u>--</u>	<u>0.5</u>
Other Expenses:			
Within Project	<u>--</u>	<u>--</u>	<u>0.2</u>
Lab. Adm. & Ser.	<u>--</u>	<u>--</u>	<u>1.0</u>
Lab. Total	<u>--</u>	<u>--</u>	<u>1.7</u>
Regional Office			<u>.017</u>
Washington Office			
Total			

Recommended Source of Funds S-K and Regular  
(S-K, Regular, Contributed, etc.)

Estimated Date of Completion: Phase 1 FY 61; Phase 2 FY; Phase 3 FY; Project FY64

Recommended by:	Date
Originator <u>Fred E. Lux</u>	<u>8/6/59</u>
Investigation Chief <u>Fred E. Lux</u>	<u>8/6/59</u>
Laboratory Director <u>Herbert W. Graham</u>	<u>8/6/59</u>
Regional Director <u>Joseph R. Penner</u>	<u>8/19/59</u>
Branch Chief <u>JHE</u>	<u>12-24-59</u>
Approved by:	
Division Chief for Director <u>[Signature]</u>	<u>1-4-60</u>

Remarks

(Continue on reverse side)



Sheet No. 1

U. S. Fish and Wildlife Service  
Bureau of Commercial Fisheries

Location: Woods Hole, Mass.  
Date: August 6, 1959  
File No.

Research Project Outline

Title of Project: Blackback: Maintain record of catch and samples

Investigation Title: Flounder

Investigation Chief: F. E. Lux

Project Leader:	<u>F. E. Lux, Fishery Research Biologist, GS-9</u>			
	<table border="0"><tr><td>Name</td><td>Title</td><td>Grade</td></tr></table>	Name	Title	Grade
Name	Title	Grade		

Assistants: (Title and Grade)

Vacant, Statistical Clerk, GS-3

Collaborators:

Need for Information: To keep track of fluctuations and unusual happenings in fishery.  
To obtain samples of lengths and scales for future use.

Objective: To keep track of fluctuations and unusual happenings in fishery.  
To obtain samples of lengths and scales for future use.

Method of Procedure:

Phase 1: Record catches, collect lengths and scale samples from commercial catch.

Phase 2:

Method of Procedure: (Cont'd)

Phase 3:

Estimated Costs: Total Needed by Laboratory for Complete Project			35.5
	<u>FY 1959</u>	<u>FY 1960</u>	<u>FY 1961</u>
Personal Services	--	0.2	0.5
Other Expenses:			
Within Project	--	0.1	0.1
	--	--	--
Lab. Adm. & Ser.	--	0.6	1.3
Lab. Total	--	0.9	1.9
Regional Office		.009	.019
Washington Office			
Total			

Recommended Source of Funds S-K and Regular  
(S-K, Regular, Contributed, etc.)

Estimated Date of Completion: Phase 1 FY 60; Phase 2 FY; Phase 3 FY; Project FY 66+

Recommended by:		Date
Originator	Fred E. Lux	8/6/59
Investigation Chief	Fred E. Lux	8/6/59
Laboratory Director	Herbert W. Graham	8/6/59
Regional Director	<i>Joseph H. Omer</i>	8/19/59
Branch Chief	<i>WHE</i>	12-24-59
Approved by:		
Division Chief for Director	<i>WHE</i>	1-1-60

Remarks

(Continue on reverse side)

U. S. Fish and Wildlife Service  
Bureau of Commercial Fisheries

Sheet No. 1

Location: Woods Hole, Mass.  
Date: August 6, 1959  
File No.

Research Project Outline

Title of Project: Fluke: Maintain record of catch and samples

Investigation Title: Flounder

Investigation Chief: F. E. Lux

Project Leader:	<u>F. E. Lux, Fishery Research Biologist,</u>	<u>GS-9</u>
	Name	Title
		Grade

Assistants: (Title and Grade)

Vacant, Statistical Clerk, GS-3

Collaborators:

Need for Information: To maintain record of catch fluctuations and unusual events in the fishery. To obtain samples of lengths and scales for future use.

Objective: To maintain record of catch fluctuations and unusual events in the fishery. To obtain samples of lengths and scales for future use.

Method of Procedure:

Phase 1: Record catches, collect lengths and scale samples from commercial catches.

Phase 2:

Method of Procedure: (Cont'd)

Phase 3:

Estimated Costs: Total Needed by Laboratory for Complete Project 35.0

	<u>FY 1959</u>	<u>FY 1960</u>	<u>FY 1961</u>
Personal Services	--	0.2	0.5
Other Expenses:			
Within Project	--	0.1	0.1
Lab. Adm. & Ser.	--	0.6	1.0
Lab. Total	--	0.9	1.6
Regional Office		.009	.016
Washington Office			
Total			

Recommended Source of Funds S-K and Regular  
(S-K, Regular, Contributed, etc.)

Estimated Date of Completion: Phase 1 FY 60; Phase 2 FY; Phase 3 FY; Project FY 66

Recommended by:	Date
Originator <u>Fred E. Lux</u>	<u>8/6/59</u>
Investigation Chief <u>Fred E. Lux</u>	<u>8/6/59</u>
Laboratory Director <u>Herbert W. Graham</u>	<u>8/6/59</u>
Regional Director <u>Joseph F. Pomeroy</u>	<u>8/19/59</u>
Branch Chief <u>JHE</u>	<u>12-24-59</u>
Approved by: <u>JHE</u>	<u>1-4-60</u>
Division Chief for Director	

Remarks

(Continue on reverse side)

U. S. Fish and Wildlife Service  
Bureau of Commercial Fisheries

Sheet No. 1

Location: Woods Hole, Mass.  
Date: August 6, 1959  
File No.

Research Project Outline

Title of Project: Dab: Maintain record of catch and samples

Investigation Title: Flounder

Investigation Chief: F. E. Lux

Project Leader:	<u>F. E. Lux, Fishery Research Biologist, GS-9</u>			
	<table border="0"><tr><td style="text-align: center;">Name</td><td style="text-align: center;">Title</td><td style="text-align: center;">Grade</td></tr></table>	Name	Title	Grade
Name	Title	Grade		

Assistants: (Title and Grade)

Vacant, Statistical Clerk, GS-3

Collaborators:

Need for Information: To maintain record of catch fluctuations and unusual events in the fishery. To obtain samples of lengths and scales for future use.

Objective: To maintain record of catch fluctuations and unusual events in the fishery. To obtain samples of lengths and scales for future use.

Method of Procedure:

Phase 1: Record catches, collect lengths and scale samples from commercial catches.

Phase 2:

Method of Procedure: (Cont'd)

Phase 3:

Estimated Costs: Total Needed by Laboratory for Complete Project 33.7

	<u>FY 1959</u>	<u>FY 1960</u>	<u>FY 1961</u>
Personal Services	<u>--</u>	<u>--</u>	<u>0.5</u>
Other Expenses:			
Within Project	<u>--</u>	<u>--</u>	<u>0.1</u>
Lab. Adm. & Ser.	<u>--</u>	<u>--</u>	<u>1.0</u>
Lab. Total	<u>--</u>	<u>--</u>	<u>1.6</u>
Regional Office			<u>.016</u>
Washington Office			
Total			

Recommended Source of Funds S-K and Regular  
(S-K, Regular, Contributed, etc.)

Estimated Date of Completion: Phase 1 FY 61; Phase 2 FY; Phase 3 FY; Project FY 66+

Recommended by:

	<u>Date</u>
Originator <u>Fred E. Lux</u>	<u>8/6/59</u>
Investigation Chief <u>Fred E. Lux</u>	<u>8/6/59</u>
Laboratory Director <u>Herbert W. Graham</u>	<u>8/6/59</u>
Regional Director <u>Joseph F. Jurecha</u>	<u>8/19/59</u>
Branch Chief <u>JHE</u>	<u>12-24-59</u>
Approved by: <u>[Signature]</u>	<u>[Signature]</u>
Division Chief for Director <u>[Signature]</u>	<u>[Signature]</u>

Remarks

(Continue on reverse side)

U. S. Fish and Wildlife Service  
Bureau of Commercial Fisheries

Sheet No. 1

Location: Woods Hole, Mass.  
Date: August 6, 1959  
File No.

Research Project Outline

Title of Project: Gray sole: Maintain record of catch and samples

Investigation Title: Flounder

Investigation Chief: F. E. Lux

Project Leader: F. E. Lux, Fishery Research Biologist, GS-9

Name

Title

Grade

Assistants: (Title and Grade)

Vacant, Statistical Clerk, GS-3

Collaborators:

Need for Information: To maintain record of catch fluctuations and unusual events in the fishery. To obtain samples of lengths and scales for future use.

Objective: To maintain record of catch fluctuations and unusual events in the fishery. To obtain samples of lengths and scales for future use.

Method of Procedure:

Phase 1: Record catches, collect lengths and scale samples from commercial catches.

Phase 2:

Method of Procedure: (Cont'd)

Phase 3:

Estimated Costs: Total Needed by Laboratory for Complete Project			32.9
	<u>FY 1959</u>	<u>FY 1960</u>	<u>FY 1961</u>
Personal Services	--	--	0.5
Other Expenses:			
Within Project	--	--	0.1
Lab. Adm. & Ser.	--	--	1.0
Lab. Total	--	--	1.6
Regional Office			.016
Washington Office			
Total			

Recommended Source of Funds S-K and Regular  
(S-K, Regular, Contributed, etc.)

Estimated Date of Completion: Phase 1 FY 61; Phase 2 FY; Phase 3 FY; Project FY 66+

Recommended by:

Originator	<u>Fred E. Lux</u>	<u>8/6/59</u>	<u>Date</u>
Investigation Chief	<u>Fred E. Lux</u>	<u>8/6/59</u>	
Laboratory Director	<u>Herbert W. Graham</u>	<u>8/6/59</u>	
Regional Director	<u>Joseph P. Penner</u>	<u>8/19/59</u>	
Branch Chief	<u>WHE</u>	<u>12-24-59</u>	
Approved by:			
Division Chief for Director	<u>WHE</u>	<u>1-4-60</u>	

Remarks

(Continue on reverse side)